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Communication with patients in post-traumatic confusional state: Perception of rehabilitation staff

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Objective: People in Post-Traumatic Confusional State (PTCS) present with communication difficulties that are well described in literature. However, limited study has been conducted on the experiences of their communication partners. The current study aimed to understand the experience of rehabilitation staff of their communication with patients in PTCS prior to communication partner training (CPT).

Methods: Staff on a subacute inpatient TBI rehabilitation unit were invited to complete a 10-item questionnaire. The questionnaire contained quantitative and open-ended text response formats, analyzed with descriptive statistics and content analysis respectively.

Results: 78 interdisciplinary staff members completed the questionnaire. The majority of staff found communication to be difficult and time consuming with half not feeling comfortable communicating with patients in PTCS. Confidence in communication was not associated with length of clinical experience. The majority of staff reported utilizing strategies to support communication, largely focused on augmenting activities with supportive objects and ensuring patient's comprehension through modification of verbal language.

Conclusions: Staff are aware of the need for creating a structured environment for patients in PTCS and less aware of communication-specific strategies aiming at helping patients' expression, which underlines the need to emphasize these strategies as part of CPT in this type of setting.

Key words: Traumatic brain Injury, Communication, Post-Traumatic Confusional State, Post-Traumatic Amnesia, Health care professionals.

Introduction

Following moderate to severe traumatic brain injury (TBI), patients experience a period of recovery after gaining consciousness where they are responsive but confused. This period is commonly referred to as Post-Traumatic Amnesia (PTA). However, to reflect the multifactorial aspects of the state of recovery and the global impairment of cognitive function with concurrent disturbance of e.g. consciousness, the term Post-Traumatic Confusional State (PTCS) has been suggested (1, 2).

Description of PTCS have focused primarily on cognitive and behavioral features of the condition, which include impairments of orientation, attention and memory, decreased arousal, fluctuation of presentation, and restlessness (1). However, disturbances of communication are also considered key features of PTCS. Based on a critical synthesis of literature related to language, cognition and cognitive communication in PTA/PTCS, Steel et al. (3) concluded that patients may exhibit language impairment in the form of difficulties with word-finding, auditory comprehension, verbal fluency and syntax. Cognitive communication disorders such as confabulation, perseveration and disorganized discourse related to confusion may also be observed. These communicative features are likely to impact on staff abilities to engage patients who are in PTCS in rehabilitation activities. Patients in PTCS with moderate to severe TBI need extensive care and rehabilitation and within the context of subacute rehabilitation, general principles of neuroplasticity recommend that patients are engaged in activities early (4, 5). Accordingly, staff need to facilitate rehabilitation activities, which challenge the patients' physical, cognitive and communicative functions and encourage the participation of the patient including a shared understanding of tasks, while the patients are still in the confusional stage of recovery. Therefore, it seems important to educate rehabilitation staff about the communicative features of PTCS and help them develop suitable communication strategies for engaging patients in PTCS in early rehabilitation. Although patients may not be in PCTS for an extended time, the patterns of communication strengths and weaknesses of a patients during PCTS are likely to persist after their emergence from PCTS (6). This underlines

the need for early assessment of communication and intervention focused on supporting patients' participation throughout the rehabilitation process.

The existing research on supporting communication with patients with TBI has predominantly focused on family and in later stages of recovery (7-9). These studies have demonstrated that communication partners may have difficulty communicating with people with TBI. For example, they may adjust how they speak to a person with TBI relative to uninjured speakers by introducing fewer topics and asking more testing questions, which may not be helpful in these interactions. However, less is known about the communication between health care staff and patients with TBI in both the chronic and the subacute stages of recovery. Although the literature on health care staff's experiences of working with patients in PTCS is limited, existing studies indicate that health care professionals find it challenging and stressful to manage interactions (10-12). Nurses have reported concerns caring for patients with acute or chronic TBI with regard to understanding patients' needs particularly for patients with communication difficulties, preventing physical injury, missing changes in condition, and both causing harm and being harmed often associated with agitated behavior (10, 11). With respect to other professional staff groups, Silva et al (12) found that occupational therapists, physical therapists, recreation therapists, and speech therapists found it difficult to establish cooperation with patients in PTCS and recommended that interventions are required to address confusion management in patients in early recovery from TBI. These studies, however, were not focused directly on understanding communication-specific issues including staff's perception of communication with patients in PTCS.

Staff communication is important both in relation to ensuring the previously mentioned collaboration in rehabilitation to maximize outcome, but communication problems have also been shown to have an impact on errors in diagnosis and treatment (13). Due to the challenges of providing direct communication intervention for patients in PTCS, an environmental approach to these patients within the subacute hospital setting would appear to merit further consideration.

Communication Partner Training (CPT) is such an environmental approach, which is recommended in best practice guidelines (14, 15). CPT seeks to improve the communication partner's ability to support the person with communication difficulties in communicative interactions. Within the framework of the International Classification of Functioning (ICF) (16), CPT is focused on the environment of the patient rather than on the impairment level.

TBI Express (17) is an approach to CPT, which has been specifically developed for communication partners (CPs) of patients with TBI. Thus, TBI Express aims to improve a CP's ability to support the person with TBI in conversational interactions. Studies of TBI Express have indicated that trained CPs provide significantly better communicative support for the person with TBI in conversations compared with CPs who have not been trained (8, 9, 18, 19). These studies, however, were focused on more chronic stages of TBI recovery and have not to our knowledge been applied in subacute TBI settings. Furthermore, with the exception of Behn et al. (18), TBI Express has predominantly been used with family or known everyday CPs of patients with TBI.

Another environmental intervention directed at CPs is Supported Conversation for Adults with Aphasia (SCA^{TM}) (20). While this method has been applied in both subacute and chronic stages of recovery and with both family and health care professionals, it has been developed for CPs of patients with post-stroke aphasia rather than patients with TBI (20-22). Thus, applications of Communication Partner Training of health care staff working with patients in PTCS have yet to be explored.

It is clear, then, that patients in PTCS experience general cognitive, behavioral and communicative difficulties. These difficulties are likely to represent a challenge to both the patient in PTCS and health care staff, who need to ensure patient safety, care for patients and engage their cooperation in rehabilitation activities. However, there is a lack of knowledge of how staff perceive communication in interactions with patients in PTCS in the subacute stage. Nor have CPT programs been developed specifically for patients in PTCS and applied in early rehabilitation settings. Greater knowledge of how rehabilitation staff perceive their roles and interactions with patients in

PTCS in relation to communication is required in order to understand the difficulties, they may encounter and to provide insight into strategies, which might serve as the basis for communication partner training programs with this patient group in mind. Thus, the aim of the current study was to gain knowledge about how rehabilitation staff experience communication related to their work with patients in post-traumatic confusional state.

Methods

The present study utilizes a cross sectional survey design as part of a larger pre-post communication partner training implementation study for interdisciplinary staff involved in the treatment, care, and rehabilitation of patients in PTCS. The questionnaire contained closed and open-ended questions to explore which factors staff associates with communicating with the patient in post-traumatic confusional state and how confident they feel in this communication.

Respondents

All clinical staff members on a highly specialized major subacute inpatient TBI rehabilitation unit were invited to participate in the study. The unit specializes in working with patients with moderate to severe TBI and receives patients with a variety of severe neurological and medical conditions directly from acute care services. The unit serves a large catchment area of approximately 2.5 million people. Mean length of stay in the unit is 70 days. Patients are engaged in rehabilitation activities while they are still in a vegetative state, minimally conscious, or in PTCS.

Accordingly, communicating with patients in PTCS is an important part of the daily work of the interdisciplinary team that includes medical doctors, registered nurses, nursing assistants, speech pathologists, physiotherapists, occupational therapists, neuropsychologists, secretaries, porters, social workers, and pedagogical assistants.

Questionnaire design

A questionnaire was constructed to address the research aims. Questionnaire design and reporting

was guided by best practice recommendations (23) and inspired by a questionnaire previously used in a hospital (21). The questionnaire focused on experiences of staff working on a daily basis with patients in PTCS. These patients are within the Ranchos Los Amigos Cognitive Functioning Scale (RLA) terminology referred to as 'confused' (24). Since the RLA is the instrument used in the TBI unit for assessment of the patients' conscious level and therefor the commonly used terminology by staff, the term 'confused patient' were used throughout the questionnaire.

The questionnaire had 10 items evaluating rehabilitation staff's perception of communication with patients in PTCS. Different response formats were used, including yes-no questions, 4-point scaled questions, and free text responses in order to obtain the type of information requested. The content covered (i) basic demographic information about respondents, including profession and years of experience, (ii) how respondents would describe the communication of patients in post-traumatic confusional state (free text response), (iii) respondents' perception of their own interaction with patients in post-traumatic confusional state (4-point scaled questions), (iv) their use of strategies in communication (yes-no question and free text response), and (v) a brief description of experiences with non-successful and successful communication (free text response). To ensure that the questionnaire was relevant and feasible for busy clinical staff, it was piloted with three staff members for feedback on content, wording, format and length. Minor changes were made based on the feedback

Recruitment and data collection

120 staff members on the TBI unit were invited to participate and received the questionnaire in their personal drawer. A printed questionnaire was chosen as the most feasible method for staff to complete within the busy ward environment. The questionnaire was estimated to take approximately fifteen minutes to complete. Staff were asked to complete the questionnaire and return it anonymously in a box on the ward prior to participating in a scheduled communication partner training program. The two speech-language therapists on the unit conducting the research were then able to periodically monitor the questionnaires return rates and reminders were given

regularly at morning conferences throughout the recruitment period of three weeks.

Data preparation and analysis

A mixed methods design was used to analyze the quantitative and qualitative data. Simple descriptive statistics including means, medians, standard deviations, range and/or frequencies, were used to analyze the quantitative data from the yes-no questions, multiple-choice and Likert-scaled responses. Brief inferential statistics were used to determine whether any significant differences existed between professions and levels of experience on ratings. For the statistical analysis IBM SPSS Statistics 22 was used.

A conventional content analyses (25) was applied separately for the open-ended questions investigating characteristics of the confused patients' communication, respondents use of strategies in communication, and their experiences of successful/non-successful communication – e.g. 'In your interaction with confused patients, what do you think characterizes their communication?' and 'Describe an episode/situation where you experienced failure to communicate with a confused patient. Feel free to comment on what you think was the cause of the communication failure'. The following steps were utilized to code the original response data and create superordinate categories.

First, respondents' handwritten responses were transcribed verbatim. The data was read and re-read by two authors to obtain a sense of the whole. Then text was highlighted by each author to capture key concepts. In the next steps, the authors collaborated to form labels for these concepts, which became the initial coding scheme. Codes were then sorted into categories based on the nature of relationship between codes. These low-level categories were then reapplied to the data by both authors and checked for agreement. Discrepancies were solved with a third author and superordinate categories were formed through research team consensus discussions. Illustrative quotes were selected where relevant to represent the categories in agreement with all authors.

The study received ethical clearance from The Regional Copenhagen Ethic Committee. I-suite no. 04636.

Results

Respondents

A total of 79 of the 120 distributed questionnaires were completed and returned (65.8% response rate). One respondent was excluded because of prior participation in a CPT training program. Of the 78 respondents who met the inclusion criteria, 33 were nurses/nurse assistants (42%), 25 were therapists: physiotherapists or occupational therapists (32%), 12 belonged to other professions: neuropsychologists, doctors, social workers, pedagogues (recreational therapists), secretaries and porters (15%) and eight were unspecified (10%). These numbers are representative of the proportional relationship between the professions employed in the unit. The median number of years working with patients in PTCS was seven (range: 0-35 years). A Kruskal-Wallis Test showed no significant difference between the staff groups in terms of years of experience ($p = 0.520$).

Characteristics of the communication of patients in PTCS

When asked how respondents would describe the communication of patients in PTCS, 66 of the 78 respondents provided a total of 145 characteristic features in free text responses. The most frequently mentioned features were related to patients' difficulties expressing themselves (38%). Examples of this category included incoherent or nonsensical speech, mumbling or word finding difficulties, and repetition of utterances and questions. The second most frequently reported characteristics were associated with confusion and cognition of patients in PTCS (31%). For example, using phrases such as: 'we are not in the same reality'[R26], 'they mix things up together'[R9], and 'they are not orientated in time or place'[R38]. Sometimes the emphasis of respondents was on the consequences of this for their ability to make the patient understand what was happening around them: 'it can be difficult to redirect the patient to the present situation'[R8]. The third most frequently reported category was associated with negative emotional reactions in patients (12%) with frustration reported most commonly followed by suspicion, anger, sadness, and anxiety. Another eight percent of features reported were related to patients' flow of speech and turn

taking (torrent of speech versus no speech). Finally, a smaller number of features referred to patients having specific difficulties comprehending what is being said to them (5%), to nonverbal pragmatic difficulties (3%) such as lack of eye contact, and 'other features'; easily fatigued, respondents act to prevent conflict escalation (2%).

Respondents' perception of their interaction with patients in PTCS

To get an impression of how staff perceived their interaction with patients, respondents were asked four questions, which were rated on a four-point scale: Strongly disagree = 1, Disagree = 2, Agree = 3, Strongly agree = 4. Data and questions can be seen in Figure 1a-d. Overall, the majority of respondents strongly disagreed or disagreed that they avoided communication with patients in PTCS. Staff agreed or strongly agreed that they found communication with patients in PTCS difficult and time-consuming. Almost 50% of staff reported feeling confident in their communication abilities while the remaining 50% disagreed with feeling confident in their communication. [Figure 1 a-d around here]

Kruskal–Wallis one-way analyses were conducted to examine whether there were any significant differences in the ratings for number of years of experience working with people in PTCS and for professional groups. The group of 'Unspecified profession' (n=8) were extracted from the data set to make this calculation. Overall, no significant differences were observed for level of experience nor professional group. However, there was a single exception of group differences between professions for question 1c (*I find communication time consuming*), $p = 0.032$). Post hoc analysis using the Mann-Whitney U Test demonstrated a significant difference between the answers for both nurses and therapists ($p = 0.036$) and nurses and 'other professions' ($p = 0.027$), but not between therapist and 'other professions' ($p = 0.595$). Nursing staff had a greater proportion of respondents who agreed/strongly agreed that communication was time consuming compared with the other professions.

Respondents' use of strategies in communication

When asked whether they used strategies to communicate with patients in PTCS, 85% (66 of 78) of the respondents answered affirmatively, the remaining 15% (12 of 78) indicated that they did not use any strategies. The 66 of respondents who answered affirmatively were also asked to list one or more strategies that they used in communication with patients. A total number of 235 strategies were reported and analyzed into 36 different categories. These categories were then regrouped into five superordinate categories to throw light on how staff approached communication with patients in PTCS. A small number of responses (2%) could not be categorized. These were responses such as "providing a rhythmic structure for the patient's response" [R69] and "interdisciplinary approaches" [R51]. Summative results for all categories and for superordinate categories are shown in Table 1. [table 1 around here]

The most frequently reported category (n = 64) was responses that aligned with augmenting activities and tasks with supportive objects and written information. These strategies included predominantly using pictures and writing to support patients' comprehension, their attention to the itinerary of the day on the whiteboard and use of personalized materials provided by the speech-language therapist including Yes/No cards.

The second most common category (n = 47) consisted of strategies ensuring patient's comprehension through modification of verbal language such as using short sentences, simple or concrete expressions and asking Yes/No questions.

The next most common category were responses that were associated with environmental scaffolding and structuring of tasks (n = 42). These subcategories were principally concerned with broader structuring of the task or activity and involved limiting of staff's own talking and guiding the patient in the activity without talking.

The fourth category was utilization of body language and gesture (n=39) where nonverbal methods were mostly described as 'using body language' whereas specific gestures, such as 'pointing, were mentioned less frequently.

The final category (n=38) included more general strategies that may have attitudinal and behavioral focus, such as observing the patient in order to adapt own behavior, showing patience and understanding, and personalizing and individualizing interaction to make the interaction/communication meaningful for the patient. For example, one respondent wrote:

> 'To be present – meeting them in their experiences, correction if necessary and possible. Calmness and stability – but that's difficult if I'm unsecure myself. Meaningful and meaning giving activities e.g. eating or dressing" [R63]

Respondents' description of experiences with non-successful and successful communication

To find out more about challenges and successes in communication, the respondents were asked to use free text responses to describe an episode or situation where they (i) experienced failure in communication and (ii) experienced success in communication. They were invited to comment on what they considered hindered or helped the communication. Most of the respondents provided examples of both non-successful and successful communication, but some only provided a response for one of the two (exact numbers are given below). The episodes or situations reported primarily concerned communication in relation to giving instructions in a therapy context or in daily care tasks. Fewer respondents reported on communication in relation to having conversations with patients. Examples of participant responses to these two questions are provided below.

> "Patient is in bed, have had a bowel movement. We want him on to a bathing chair to shower him. At first, we try to get him to stand up, which he won't cooperate to, which leads us to use the gliding board. We can't show or guide him to use it. Finally, we give up and lift him over, but the patient is now very confused and opposes us, perhaps even more? [R13]

> "Patient gets restless and points in different directions and is very insisting. I interpret it as a need to urinate, which is correct. Since I know the patient well and realize that when he reacts so strongly it is typically because of a need to urinate." [R46]

With regards to a non-successful communication interaction, 63% of respondents (49 of 78)

provided a response. One hundred and twenty-eight individual reasons for failure in communication were identified. For successes in communication 68% (53 of 78) provided a response with seventy-seven individual reasons identified for successful communication. Summative results are reported in Tables 2 (non-successful) and 3 (successful) together with illustrative quotes. [tables 2 and 3 around here]

Discussion

The aim of this study was to understand the perception and experiences of interdisciplinary rehabilitation staff with communicating with patients in post-traumatic confusional state in an inpatient subacute setting.

Overall, while staff do not report avoiding communication, they find it challenging, time consuming and lack confidence in communicating with people in PTCS. The majority of staff reported utilising strategies, and these were most commonly supporting understanding through objects/written materials, modifying verbal language, structuring tasks and having a patient attitude to interactions. Despite this, the majority of staff described communication difficulty being a feature of people with PTCS. Furthermore, despite emphasizing use of strategies to ensure comprehension, the most frequently reported category of difficulties was expression. Respondents identified successful communication often as instances where they simplified their language and they maintained a calm approach to interactions. When describing unsuccessful communication, staff most overwhelmingly identified patient behavior such as negative emotional reactions as the source of the breakdown.

Earlier studies have not specifically addressed staff's experiences with communication but have shown more generally that health care professionals find it challenging and stressful to care for and work with patients in PTCS (10-12). In the current study, when asked specifically about communication, results across all staff groups showed that staff found communication with patients in PTCS difficult and time consuming. One specific exception was that nurses rated communication as time consuming more strongly than other professions. These findings could be related to a lack

of knowledge of the patient groups and efficient communication, but it could potentially also be related to the intensive nature of nursing work, where multiple tasks must be completed with competing patient demands. In contrast to some nursing work, therapists are often able to focus on one patient at a time with a specific task/training and as a result may not have identical time pressures that manifest as intensely.

Only half of the staff group report feeling confident in communicating with a patient in PTCS. Despite this, staff do not report avoiding communication with patients. Accordingly, many staff members are likely on a regular basis to find themselves in situations where they feel a lack of confidence, yet continue to perform their work-related tasks, including communicating with this patient population.

No difference was found in self-rated confidence in communicating with this patient group depending on years of experience, despite a wide range of respondent experience (0 to 35 years). Although this may seem surprising, one interpretation of this finding is that staff do not necessarily learn through experience alone how to communicate confidently with patients in PTCS. This result suggests that is is important to explore the potential benefits of training staff in using appropriate strategies and techniques to support communication and to determine the effects this training has on perceived self confidence and self efficiacy of newly graduated and more xperienced health professionals.

Staff's perception of the characteristics of the communication of patients in PTCS aligned with communicative features reported by Steel et al. in their 2015 literature synthesis (3). For example, staff emphasized patients' expressive difficulties in regard to language (e.g., word finding difficulties), but even more so the communicative manifestation of confusion (e.g. in patients' incoherent or nonsensical speech). Additionally, patients' difficulties with orientation and comprehension of what is occurring around them were frequently mentioned features in staff responses ("We are not in the same reality"). Negative emotional reactions including frustration, suspicion, anger, sadness, and anxiety from patients were also reported as a characteristic

communicative pattern by 12% of staff. Expression of negative emotions can be experienced as challenging behaviour by staff and is reported as such in Kivunja et al.'s (26) synthesis of literature on the experience of providing care for people with TBI in hospital and rehabilitation settings. In Kivunja's study, challenges were associated with 'Maintaining personal safety', e.g. nurses experiencing a need for 'identifying people's agression triggers', and with 'Managing challenging behaviour', e.g. nurses 'experiencing stress as a result for caring for people with with TBI presenting with aggressive bahaviour'. However, there is little mention of, or conceptualising of the role of communication difficulties experienced by nurses when caring for people with TBI. It is also unclear to which degree communication difficulties were probed in the individual studies contained in the review, although challenging behaviour is often associated with communication difficulties, e.g., in dementia (27). The current study shows that when probed, staff can identify communication and behavioural related challenges. However, the degree to which a connection is made beween these factors is less clear. Further research may throw light on the role of communication difficulties in patients' responses that appear highly emotive and challenging. It can also be explored whether staff may benefit from more explicit training to understand that emotional expression and challenging behaviours are forms of communication, and/or that these expressions and behviors may be the patient's response to challenges in communication. Thus, staff communication skill training, may become part of a broader educational approach to managing challenging behaviours, cf. Farrell et al., 2010 (28).

In the current study, when probed, staff reported that they made use of different strategies in their communication with patients with PTCS. Some of the reported strategies appeared to reflect general behavioural approaches used in rehabilitation, including *taking a positive attitude* and *avoiding escalation of conflict*. Other strategies were directed at compensating for patients' cognitive difficulties, such as *shielding from external stimuli*, *guiding* and *structuring the activity*. These cognitive components are core aspects of an approach to learning and rehabiltation developed by Felice Affolter (29) which is applied extensively in the rehabilitation unit where this study was

carried out. Affolter's approach emphasizes the importance of perceptual processes in rehabilitation of brain injured patients. In accordance with this, patients are guided motorically and through sensory perception through daily activities and problem solving. Within this approach, verbal communication with the patient during activities may be minimized so as not to disturb the prioritized sensory and motor stimulation. It is not clear, to what extent the suggestions of the Affolter appraoch to limit speech and communication with the patient are implemented in practice by staff. However, limiting communication would seem to be at odds with other principles in neurorehabilitation, such as the principles of neuroplasticity when applied to rehabilitation of speech, language and communication (4).

Other reported strategies were communication-specific. Primarily, the strategies reported in this category were used in order to support the patient in comprehending a situation, a task, or a procedure to be carried out, e.g. *pointing to objects* and using *short sentences.* Staff less frequently reported strategies aiming to support patients in expressing themselves, despite problems with expression being a key charateristic idenfied by staff when describing the communicative characteristics of patients with PTCS. It seems, then, that use of strategies for supporting verbal expression in patients may require explicit instruction of staff.

Staff in this study reported using communication strategies in successful interactions and largely attributed success to their own use of such strategies. However, it was not clear to what degree they also had attempted to use strategies in interactions, which were reported as unsuccessful. For these unsuccessful interactions, staff mainly attributed the problem to the state of the patient as being in PTCS. The narratives reflect that instructions are a big part of the communication which take place during the daily care tasks and therapy, like transfer to and from the bed, helping with hygiene related issues and making sure the patient eats and drinks. Some of the situations reported are potentially dangerous for the patient, e.g. when a patient is trying to leave the unit or step out of bed despite being unable to stand. Situations of this kind may urge staff to act in ways that are contrary to the patient's wish or understanding of the situation. Going through with

tasks despite rejection from the patient are also reported in situations related to medical intervention and rehabilitation e.g. treatment for lunge insufficiency, hygiene routines and physiotherapy. Overall, these narratives suggest, that staff members at times find themselves in difficult situations, where communication and alignment with the patient is not achieved, and the results are likely to be frustrating for both patient and staff. Therefore, it may be beneficial in designing communication training of staff to focus on frequent routines of different health care professionals, who engage with patients in the PTCS context.

Strengths and Limitations

The current study has several important strengths. Principally, it is one of the largest studies to date to specifically examine perceptions of communication with patients in PTCS from interdisciplinary staff's perspective and explore their approach to communication. The overall response rate was 65.8%, which represented a majority of staff in the service and there was a distribution of respondents across all major professions and across a large range of years of experience working with patients in PTCS. The study took place in a single unit and accordingly, results might not be generalized to other rehabilitation units.

The questionnaire design was suitable for the purpose of the study, but we had some missing data due to the paper-based response format, which did not allow forced completion of some items. This issue might have been overcome by utilising an online questionnaire with complusory questions. However, the paper format was prioritised as more convienient for staff to complete and therefore more likely to ensure a reasonable response rate on the questionnaire as a whole.

The questionnaire design while allowing for a larger number of participants, also limited our ability to explore in more detail the context and nature of participants' responses. More in depth studies with interview or focus group designs may complement the current foundational research. While the context of the current study was focusing on the nature of strategies and experiences of staff

communicating with people in PTCS, we did not focus on the reason for non strategy use in this study and this could be explored further in subsequent research and observational, video recall based designs. Additionally, the self-report nature of a questionnaire may have meant that elements of recall and other bias was present in our results. Observational studies may provide an objective, external perspective on the nature of communication and interactions for staff with people with PTCS and thus complement the stakeholder perspective. While the strength of the study was in the interdisciplinary nature of the participant group, we did not survey people with TBI or their relatives/carers as stakeholders in staff-patient communication.

Further directions

This study provides a foundational understanding of the issues and experiences of interdisciplinary staff in communicating with people in PTCS. Future research should explore the potential effectiveness of communication training programs to meet staff's needs and to understand their experiences with these training programs.

Conclusion

Communication plays an important role in the early phase of rehabilitation after TBI. With the patients in PTCS the main communication responsibility is laid on the rehabilitation staff. To the authors' knowledge, this is the first study that has focused on rehabilitation staff's perception and experiences of communication in the sub-acute setting working with patients in PTCS. The study has demonstrated that interdisciplinary staff are using strategies aiming at helping patients' comprehension and thus enhancing their participation in early rehabilitation activities. The interdisciplinary staff are less aware of strategies, which provide patients' with means and opportunities for expressing themselves.

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Table 1. Summative results for all categories of reported strategies.

Superordinate category	**n**	**Subcategory**	**n**
Augmenting tasks with supportive objects / written materials	64	Pictures	19
		Speech-Language Therapist materials	11
		Writing to support patient's comprehension	9
		Day plan on whiteboard	8
		Yes/No cards	5
		Objects	5
		Written key words	3
		Drawing	2
		Calendars	2
Ensuring patient's comprehension	47	Short sentences	14
		Simple/concrete (expression)	9
		Yes/No questions	8
		Slow speech	6
		Repeating (one self)	4
		One thing at a time	3
		Repeating the patient's utterance	3
Environmental scaffolding and structuring the tasks	42	Limiting own talking during activities	10
		Shielding patient from stimulation	8
		Nonverbal guiding	9
		Orientating	6
		Contextualizing and structuring task	6
		Verbal cues to accompany tasks	3
Using body language/gesture	39	General body language / nonverbal	25
		Showing/pointing	6
		Eye contact	5
		Facial expression	3
General strategies approaching the interaction	38	Observing	9
		Patience/Understanding	9
		Personalizing	6
		Time/Breaks	5
		Positive attitude	5
		Non-confronting	4

Table 2. Superordinate categories, reasons for failure in communication and illustrative quotes.

Superordinate category	**n**	**Reasons for failure**	**n**	**Quotations**
Patient behavior	66	Negative emotional reactions	18	• *"Pt is lying in a very wet bed. Everything had to be changed (clothes, diaper, linen). Pt gets angry, but it is not possible to understand word/sentences" [R60]*
		Confusion	9	
		Verbosity	7	
		Restlessness	7	• *"I was brushing the pts' teeth's but he stood up, talking to me like we knew each other from before and were asking a lot of questions. He wasn't orientated in place, person and time and didn't believe that he was in hospital. Neither did he understand my explanation and kept talking, but without I had experienced the same as him" [R76]*
		Cognitive difficulties	5	
		Aphasia	4	
		Agitation	4	
		Reduced insight	4	
		Rejection	3	
		Low arousal	2	
		Tangentially	1	
		Giving up	1	• *"Pt is physically restless and has an excessive current of speech. It is not possible to reach him with what I would like to say. Do not relax enough to sit down, he just wants to leave. I can't make him stop his current of speech" [R6]*
		Language shifting L1 L2	1	• *"He is a bit agitated and tries to leave the unit" [R45]*
Difficulties for the patient to comprehend what is being said/what is going on	21	The patient does not understand	18	• *"The pt is walking restlessly around in the unit and looking for something. Can't explain what she is looking for, what she says doesn't make sense. She can't hear that what she is saying doesn't make sense. I explain that I am not sure what she is looking for several times, but she can't understand that I doesn't understand her. Tries to explain that everything is under control and she doesn't have to worry. Can't get the pt to relax" [R54]*
		Not possible to re-orientate	3	

				• *"Attempted to reduce secretion in the airways using the Cough-assist machine. Pt rejects and speaks at the same time about other things. It/the procedure is tested several times with the machine turned off, short headlines, friendly body language, inclusion of pt, but no luck. The cause is considered to be a combination of reduced understanding of the abstract activity, reduced comprehension of verbal explanation, as well as discomfort" [R70]* • *"Pt needs the bathroom, can walk by herself. I point to the toilet and let her know it is in that direction. I take her arm to guide her to the toilet. She turns around and walk into the corridor. When I try to redirect the pt she gets very angry and frustrated because she urgently needs the toilet. I have to give up on communication and just take her to the bathroom. She didn't understand what I was saying" [R11]*
Difficulties understanding the patient	18	Not able to understand what the patient is saying Unintelligible	17 1	• *"Tried eating with a pt who was restless and very talkative. Tried to move all non-necessary objects and help him eat. Tried to make him sit down to establish eye contact and find some rest - put my hand on him and said 'Break'. Weren't able to move on - there were clearly something he weren't satisfied with. I couldn't figure out what it was" [R29]* • *"Difficult to understand the separate words, if any said" [R18]*

Staff knowledge and behavior	14	Staffs own feeling of failure No prior knowledge of the patient Having to force something through Not having enough time	4 4 3 3	• *"The pt wants to tell something. I ask about different things, points to things in the room but I don't succeed in finding out what he means. He gives up. Actually, a defeat and frustration for both of us" [R33]*
Limitations of strategy use	9	Strategies not working Not able to test strategies Lack of tools/strategies	7 1 1	• *"Pt was confused and had high arousal - I had no previous knowledge of the pt. and found it difficult to use my usual strategies. The pt didn't feel understood and got frustrated" [R57]*

Table 3. Superordinate categories, reasons for successful communication and illustrative quotes.

Superordinate category	**n**	**Reasons for success**	**n**	**Quotations**
Simplifying verbal language	24	Using concrete or simple language	10	• *"Simple language with concrete items in care task in front of patient" [R11]* • *"Reduce talking when guiding patients so they calm down" [R8]* • *"Tried to comprehend the cause of the pt's frustration. The pt was very confuse and had difficulties explaining. By being concrete in my questions (yes / no) we got hold of what the pt. wanted" [R7]*
		Reduce the amount said	5	
		Shorten sentences	3	
		Speaking slowly	3	
		Restricting instructions to statements not a question/ giving no choice	2	
		Using yes/no questions	1	
Staff behavior and approach	22	Staff behavior/affect (being calm)	6	• *"Make patient feel safe by being calm yourself and happy/smiling" [R72]* • *"Having enough time to repeat the information several times" [R51]* • *"Reduce distractions (visual and noise based)" [R58]* • *"A confuse pt won't have his arm worked through since it is hurting. I ask if anything help for the pain. Pt tells that when he moves the arm by himself it's better. We agree that he moves his arm after my instructions. We succeed in making a plan both of us can accept" [R34]*
		Taking time to communicate	4	
		Providing patients with explanations to aid with cooperation during tasks	3	
		Introducing personally relevant topics	2	
		Minimize distractions	2	
		Understanding the patients' point of view/solution	1	
		Agree with the patient even if I don't understand	1	
		Trying to compromise	1	
		Attend to patient gesture to increase comprehension	1	
		Timing of communication attempts when patient interested	1	

Supporting verbal language	15	Written key words and additional information	7	• *"Using key words in a communication book helped the patient to understand when they wouldn't have understood longer language" [R1]*
		Pointing to visual objects/Gesture	5	• *".... Use a lot of "bodily" communication - guiding or facilitation of movement/activity" [R41].*
		Repetition of information	3	
Prior knowledge of the patient and their routines	10	Knowledge of the patient's routines	7	• *"...it was a prerequisite that I knew several details in order to lead the communication" [R3].*
		Knowledge of patient's prior history	3	
Other	6	Nonverbal communication (eye-contact)	2	• *"I meet the pt in the corridor, where he stops me to asks for his car keys. I tell him that his car keys aren't here at the Hospital. I orientate him about where he is and why. Tell him he is at the hospital for rehabilitation and that he was brought here in an ambulance. He accepts it and I follow him back to his room for him to see it and recognize it" [R27]*
		Shared knowledge of the purpose of the interaction	1	
		Re-orientate a confused patient	1	
		Structure tasks at the patient level	1	
		When the patient is feeling safe	1	

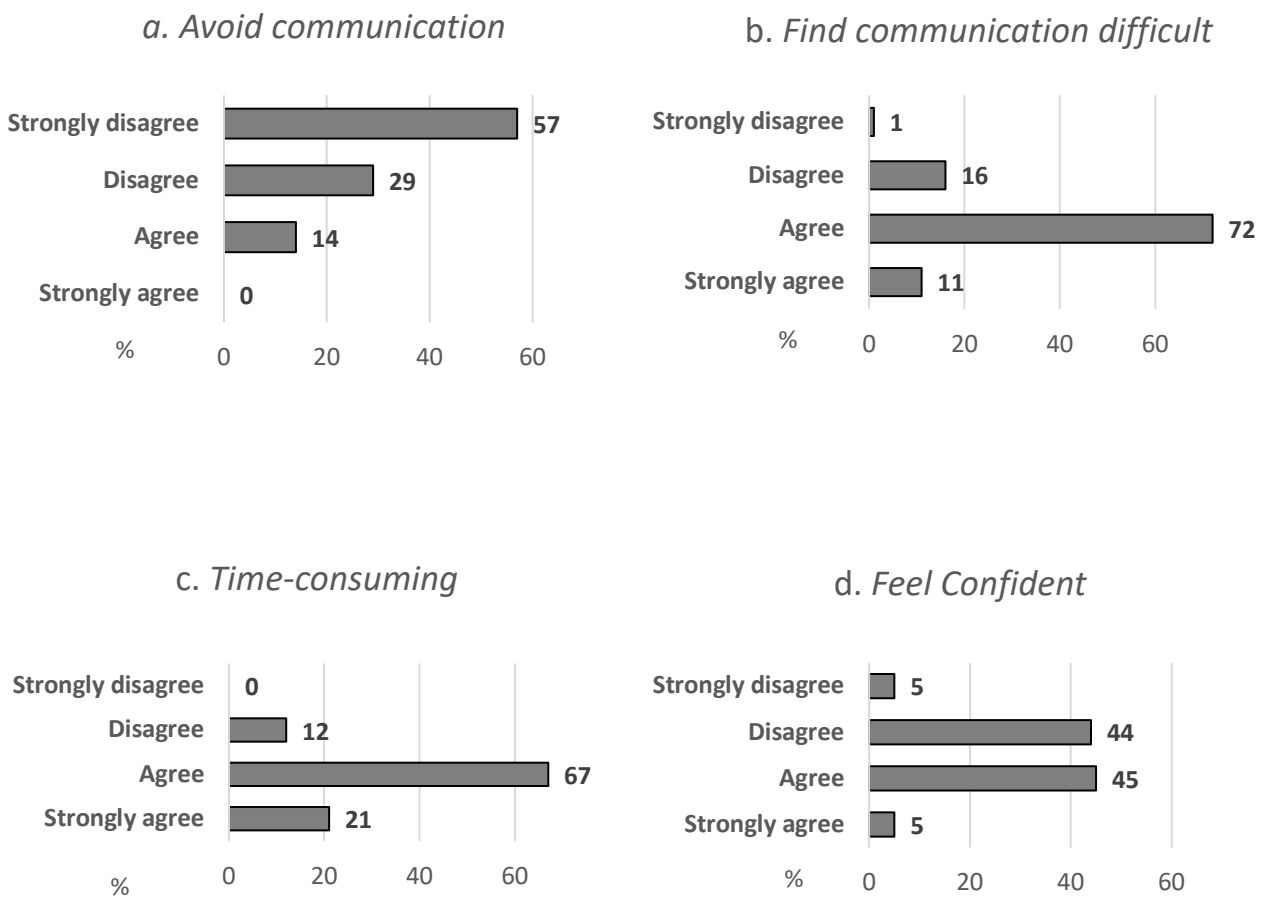

Figure 1a-d. Percentage distribution of respondents' answers to: a. *I avoid communication with patients in confusion unless absolutely necessary* (number of responses= 77); b. *I find communication with patients in confusion to be difficult* (number of responses= 76); c. *I find communication with patients in confusion to be time-consuming* (number of responses= 76); d. *I feel confident supporting communication with patients in confusion* (number of responses= 75).